

1 **CLAIMS**

2 What is claimed is:

3 1. A portal server framework for modifying modules within a portal on a
4 computer network, comprising:
5 an intermediate class configured to instantiate an intermediate object, the
6 intermediate object operable to hold a reference to a current implementation of an
7 instantiated object, the instantiated object encapsulating information of a particular
8 type on the computer network; and
9 an updateable subsystem class configured to instantiate an update
10 subsystem object, the update subsystem object operable to select an updated
11 implementation of the instantiated object from a set of update servers;
12 whereby, an appropriate update server in the set of update servers from
13 which to select the updated implementation of the instantiated object is based on
14 host identification information of a site hosting the portal, and upon installation on
15 the network, the classes are executable by a processor on the computer network.

1 2. The portal server framework of claim 1, further comprising a portal module
2 upgrade servlet class configured to instantiate a portal module upgrade servlet
3 object, the a portal module upgrade servlet object operable to deliver a file to the
4 update system object from the appropriate update server in the set of update
5 servers.

1 3. The portal server framework of claim 2, wherein the file includes a
2 combination of: a class file, an image file, a sound file and data information file.

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1 4. The portal server framework of claim 3, further comprising a dynamic
2 loader class configured to instantiate a dynamic loader object, the dynamic loader
3 object operable to retrieve a set of classes for the updated implementation of the
4 instantiated object.

1 5. The portal server framework of claim 4, further comprising a swappable
2 loader class configured to instantiate a swappable object, the swappable object
3 operable to provide the set of classes for the updated implementation of the
4 instantiated object to the intermediate object.

1 6. The portal server framework of claim 5, wherein the intermediate object
2 replaces the reference to the current implementation of the instantiated object with
3 a reference to the updated implementation of the instantiated object.

1 7. The portal server framework of claim 1, further comprising a portal module
2 upgrade servlet class configured to instantiate a portal module upgrade servlet
3 object, the portal module upgrade servlet object operable to deliver a properties
4 object to the update system object from the appropriate update server in the set of
5 update servers.

1 8. The portal server framework of claim 7, wherein the properties object
2 includes a combination of the location of: a file, a class name of the updated
3 implementation of the instantiated object, a title of the updated implementation of
4 the instantiated object, a description of the updated implementation of the
5 instantiated object, and an updated implementation of the instantiated object.

1 9. The portal server framework of claim 1, further comprising an
2 administrative interface class configured to instantiate an administrative object, the
3 administrative object operable to provide an instantiated new object, the
4 instantiated new object representing an updated implementation of the instantiated
5 object.

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7 10. A method of modifying modules within a portal on a computer network,
8 comprising:

9 providing an intermediate class configured to instantiate an intermediate
10 object, the intermediate object operable to hold a reference to a current
11 implementation of an instantiated object, the instantiated object encapsulating
12 information of a particular type on the computer network; and

13 providing an updateable subsystem class configured to instantiate an update
14 subsystem object, the update subsystem object operable to select an updated
15 implementation of the instantiated object from a set of update servers;

16 whereby, an appropriate update server in the set of update servers from
17 which to select the updated implementation of the instantiated object is based on
18 host identification information of a site hosting the portal, and the classes are
19 executable by a processor on the computer network.

1 11. The method of claim 10, further comprising providing a portal module
2 upgrade servlet class configured to instantiate a portal module upgrade servlet
3 object, the a portal module upgrade servlet object operable to deliver a file to the
4 update system object from the appropriate update server in the set of update
5 servers.

1 12. The method of claim 11, wherein the file includes a combination of: a class
2 file, an image file, a sound file and data information file.

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1 13. The method of claim 12, further comprising providing a dynamic loader
2 class configured to instantiate a dynamic loader object, the dynamic loader object
3 operable to retrieve a set of classes for the updated implementation of the
4 instantiated object.

1 14. The method of claim 13, further comprising providing a swappable loader
2 class configured to instantiate a swappable object, the swappable object operable
3 to provide the set of classes for the updated implementation of the instantiated
4 object to the intermediate object.

1 15. The method of claim 14, wherein the intermediate object replaces the
2 reference to the current implementation of the instantiated object with a reference
3 to the updated implementation of the instantiated object.

1 16. The method of claim 10, further comprising providing a portal module
2 upgrade servlet class configured to instantiate a portal module upgrade servlet
3 object, the portal module upgrade servlet object operable to deliver a properties
4 object to the update system object from the appropriate update server in the set of
5 update servers.

1 17. The method of claim 16, wherein the properties object includes a
2 combination of the location of: a file, a class name of the updated implementation
3 of the instantiated object, a title of the updated implementation of the instantiated

4 object, a description of the updated implementation of the instantiated object, and
5 an updated implementation of the instantiated object.

1 18. The method of claim 10, further comprising providing an administrative
2 interface class configured to instantiate an administrative object, the administrative
3 object operable to provide an instantiated new object, the instantiated new object
4 representing an updated implementation of the instantiated object.

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6 19. A computer program product for modifying modules within a portal on a
7 computer network, comprising:

8 a computer readable medium; and
9 computer program instructions, recorded on the computer readable medium,
10 executable by a processor, for performing the steps of:
11 instantiating an intermediate object, the intermediate object operable
12 to hold a reference to a current implementation of an instantiated object, the
13 instantiated object encapsulating information of a particular type on the
14 computer network; and

15 instantiating an update subsystem object, the update subsystem
16 object operable to select an updated implementation of the instantiated object from
17 a set of update servers;

18 whereby, an appropriate update server in the set of update servers from
19 which to select the updated implementation of the instantiated object is based on
20 host identification information of a site hosting the portal.

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1 20. The computer program product of claim 19, further comprising computer
2 program instructions for performing the step of instantiating a portal module
3 upgrade servlet object, the a portal module upgrade servlet object operable to

4 deliver a file to the update system object from the appropriate update server in the
5 set of update servers.

1 21. The computer program product of claim 20, wherein the file includes a
2 combination of: a class file, an image file, a sound file and data information file.

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1 22. The computer program product of claim 21, further comprising computer
2 program instructions for performing the step of instantiating a dynamic loader
3 object, the dynamic loader object operable to retrieve a set of classes for the
4 updated implementation of the instantiated object.

1 23. The computer program product of claim 22, further comprising computer
2 program instructions for performing the step of instantiating a swappable object,
3 the swappable object operable to provide the set of classes for the updated
4 implementation of the instantiated object to the intermediate object.

1 24. The computer program product of claim 23, wherein the intermediate object
2 replaces the reference to the current implementation of the instantiated object with
3 a reference to the updated implementation of the instantiated object.

1 25. The computer program product of claim 19, further comprising computer
2 program instructions for performing the step of instantiating a portal module
3 upgrade servlet object, the portal module upgrade servlet object operable to deliver
4 a properties object to the update system object from the appropriate update server
5 in the set of update servers.

1 26. The computer program product of claim 25, wherein the properties object
2 includes a combination of the location of: a file, a class name of the updated
3 implementation of the instantiated object, a title of the updated implementation of
4 the instantiated object, a description of the updated implementation of the
5 instantiated object, and an updated implementation of the instantiated object.

1 27. The computer program product of claim 19, further comprising computer
2 program instructions for performing the step of instantiating an administrative
3 object, the administrative object operable to provide an instantiated new object,
4 the instantiated new object representing an updated implementation of the
5 instantiated object.

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